

PATENT SPECIFICATION

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COMPLETE SPECIFICATION

Footwear with Interior Ventilation

We, ETABLISSEMENTS HUTCHINSON, of 124, Avenue des Champs-Elysées, Paris (Seine), France, a French Company, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

The advisability of ensuring inside ventilation in shoes in the vicinity of the sole of the foot is well known. Such ventilation is particularly useful in shoes having a waterproof sole, such as for example natural or synthetic rubber or equivalent flexible waterproof material, especially in the types known as tennis and basket shoes.

The practice has therefore been adopted of providing air circulation passages or ducts in the sole as well as lateral orifices for connecting such passages with the outer air. The provision of such air passages in the sole, however, involves many difficulties in practice due to the thinness of the sole and the drawbacks entailed by the provision of orifices almost flush with the ground through which water, dust or mud can enter.

The invention has for its object a new shoe incorporating internal ventilation which does not involve the disadvantages referred to above.

This shoe, of the type comprising in an inner sole passages for the circulation of air discharging outside the sole through air inlet orifices protected by a covering communicating with the exterior of the shoe at a higher level than that of these orifices, is characterised in that these air inlet orifices are provided in the upper above the junction of the latter with the outer sole and at substantially the same level as that of said passages and the covering is constituted by a strip applied against the shoe externally thereof and thereby forming a tight seal below these orifices.

The air passage may consist either of a number of separate ducts or of a network of intercommunicating ducts; they may likewise consist of a combination of the said two

means. They may be provided on the lower face of the inner sole which will in that case be permeable or will incorporate vertical perforations to enable the air to reach the inside of the shoe. They may also be provided on the upper face of the inner sole.

If the system or network of air circulation ducts is provided in an inner sole, it will communicate with the outer air by means of holes provided laterally in the upper of the shoe above the wearing sole, that is to say already at a certain distance from the ground.

The covering strip cemented on to the perforated part of the upper or, where necessary, on to the sole, may advantageously consist of two parts: an inner strip having upwardly directed notches opposite the holes and a continuous protective strip fixed on the inner strip and extending just above the level of the holes, in such a manner that the latter communicate with the outside through the notches by means of orifices which are located on a level with the upper edge of the notched strip. The two strips referred to above may, moreover, be replaced by a single strip provided on its inner surface with upwardly directed grooves for the passage of air serving the same purpose as the notches referred to above. The covering strips may extend more or less in an upward direction in such manner that the air inlet orifices are at a level sufficiently above the ground; in particular, the invention may be applied to shoes having a watertight upper of the type known as "brogues," in which case the protective strips may extend to the upper part of the heel of the shoe, for example as far as the top of the stiffening strip generally provided in the upper around the heel, in which case the air inlet orifices will be at that level.

According to one embodiment which appears to be particularly advantageous, the air inlet holes are provided in the vicinity of the arch of the sole and on the inner edge of the shoe, that is to say on the left hand edge for the right foot and on the right hand edge for the left foot.

The said holes may, with advantage, be

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provided opposite to an arch support, if such a support is incorporated; the said support may be provided with passages designed to connect the inlet orifices with the passages arranged in the inner sole proper. The arranging of the holes in the upper within a limited area still further reduces the risk of dust or mud penetrating the inside and improves the appearance of the shoe, especially if the said area is on the inner edge of the arch of the sole, since in that case it is set more underneath the foot and is much less apparent.

To enable the invention to be more readily understood embodiments thereof are described hereunder with reference to the accompanying drawing, in which:—

Fig. 1 is a side elevation of a shoe according to the invention without the outer strips;

Fig. 2 is an analogous view of a finished shoe, on which a part of the protective strip has been removed to show the notched strip;

Fig. 3 shows the inner sole of the shoe viewed from below;

Fig. 4 is a section on the line 4—4 of Fig. 1;

Fig. 5 shows a shoe according to another embodiment;

Fig. 6 shows the inner sole of the said shoe viewed from below;

Fig. 7 is a section on the line 7—7 of Fig. 5;

Fig. 8 is an analogous view of a shoe without its outer strips, with air circulation ducts on the upper face of the lower inner sole;

Fig. 9 is a plan view of the inner sole corresponding thereto with the support for the arch of the foot; and

Fig. 10 is a lateral view of the arch support provided above the inner sole.

In the embodiment shown in Figs. 1 to 4, 1 is the outer or wearing sole of rubber or equivalent material, 2 is the upper and 3 air inlet holes passing through the upper above the wearing sole 1 and level with an inner sole 4 having on its lower face transverse grooves 5 terminating in the holes 3. Vertical holes 6 passing through the sole 4 are provided at intervals in the grooves 5 to enable the air to pass through the said inner sole 4 and reach the sole of the foot.

The upper of the shoe is covered, in the vicinity of its holes 3 by a strip 7 (Fig. 2) having, opposite to each hole 3 a notch 8 opening in upward direction, the said strip is covered by a protective continuous strip 9, so that the notches 8 only communicate with the outer air at the top thus preventing dust and mud from the ground entering through the holes 3. The strip 9 thus forms a protective zone around the holes 3. The strips 7 and 9 may be replaced by a single strip having, on its inner face, ducts serving the same purpose as the notches 8.

The embodiment illustrated in Figs. 6 to 7, is a modified embodiment of the same prin-

ciple, the wearing sole is again shown at 1 and the upper at 2, but the holes 10 in the upper are confined to the vicinity of the arch of the foot on the inner side of the shoe, Fig. 5 illustrating the left hand side of a shoe intended for the right foot. The zone containing the holes 10 is covered by a notched strip 11 analogous to the strip 7 but limited to that zone and the said strip is covered, in turn, by a protective strip 12. In this embodiment it has been assumed that the inner sole 13 consists of a sheet of suitable material perforated by holes 14 and having, on its lower face, separate bosses 15 between which the air entering through the holes 10 can circulate.

The bosses located towards the zone containing the holes 10 and shown at 16 may be slightly higher than the others in order to raise the sole at that point so that it forms a support for the arch of the foot.

The embodiment illustrated in Figs. 8 to 10 differs from the preceding embodiment only in the arrangement of the inner sole 17, which is provided with grooves 18 on its upper face, the said grooves communicating with the holes 10 through ducts 19 provided in a support 20 for the arch of the foot, the said support being provided above the sole 17 in the inner part of the arch. The sole 17 may be covered with a first permeable sole 21 serving to cover and conceal the grooves 18.

What we claim is:—

1. An internally ventilated shoe of the type comprising in an inner sole passages for the circulation of air discharging outside the sole through air inlet orifices protected by a covering communicating with the exterior of the shoe at a higher level than that of these orifices, characterised in that these air inlet orifices are provided in the upper above the junction of the latter with the outer sole and at substantially the same level as that of said passages and the covering is constituted by a strip applied against the shoe externally thereof and thereby forming a tight seal below these orifices.

2. A shoe as claimed in claim 1, wherein said external strip comprises a lower solid part forming said seal and surmounted by upwardly directed recesses arranged in front of the air inlet orifices.

3. A shoe as claimed in claim 1, wherein said external strip is solid throughout its height and covers an inner strip comprising upwardly directed notches in front of the air inlet orifices and a lower solid portion forming said seal.

4. A shoe according to any one of the preceding claims, wherein the air inlet orifices are distributed along the entire periphery of the upper, the external strip being continuous.

5. A shoe according to any one of claims 1 to 3, wherein the inner sole comprises a

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thicker portion or is provided with a separate fitment forming the arch of the sole and there are provided in said thicker portion or fitment ducts towards which the air circulation passages converge to enable air to enter from the inlet orifices, the latter being restricted to the portion of the upper in front of said arch.

6. An internally ventilated shoe substantially as described with reference to the drawings.

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